

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden, Governor • Stephen M. Mahfood, Director

May 14, 2002



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SUPERFUND DIVISION

Mr. Bruce Morrison
U.S. Environmental Protection Agency
901 N. 5th St
Kansas City, KS 66101

Dear Mr. Morrison:

I have reviewed The Doe Run Company's Sampling and Analysis Plan (SAP) and am providing comments below. Further comments from the Missouri Department of Natural Resources and the U.S. Fish and Wildlife Service, as joint Natural Resource Damage Trustees, will be forthcoming.

In general, many of the comments made to the Quality Assurance Project Plan (QAPP) related to scope apply to the SAP. The QAPP and the SAP focus very narrowly on aquatic impacts from the slag pile. The scope of this SAP should include all site-wide impacts that would be germane to an Ecological Risk Assessment and Natural Resource Damage Assessment. Instead of reiterating the QAPP comments, I have enclosed my earlier comments on that document so that the SAP can be modified accordingly. Comments #1, 3, and 4, in particular, in my March 18, 2002, comment letter on the QAPP should be incorporated into the SAP. In addition to broader scope in source area investigations, the scope of the media and organisms sampled for each source area need to be broadened. For example, stream macrobenthos and soil invertebrates should also be sampled.

The following are the department's specific comments on the subject document:

1. Pages 1-1 and 1-4, Section 1. As stated in the general comments, need to encompass the full scope of ecological risks or natural resource injury determination not related to the slag pile. The objectives of the plan should be expanded. Smelter fallout and drainage from roads should be investigated as a source. The scope of the SAP should be to investigate the slag storage area, as well as environmental impacts to terrestrial ecosystems and the Mississippi River from air deposition of metals or releases from other areas of the facility (especially the former slag storage area). Data collected by the U.S. Fish and Wildlife Service indicates significant metal concentrations in the Mississippi River below Herculaneum. It is premature to conclude that the slag pile is the only source of this contamination. Sampling conducted under this SAP should focus on other potential sources from the facility could cause metal elevations in the river.
2. Section 1.3.1, Potential Chemical Sources. In light of recent allegations of non-slag related materials being buried in the pile, PCBs and possibly other organic analytes should be included in the chemical analyses of samples collected from the seep and sediment from the drainage coming from the southeast side of the pile.
3. Section 2.1, Not all Sample Locations are Explicitly Identified. It is inappropriate to dismiss data solely because the authors do not know the exact location that a sample was collected. It



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is likely that the agencies can assist in locating these sample locations. Approximate locations may be good enough to render the data meaningful and relevant.

4. Page 2-3, Section 2-4, and Table 2-1. The text tends to overemphasize the low solubility of the slag and minimizes the elutriate concentrations from the fat-head toxicity testing. Concentrations in the elutriate were still ten to thirty times over likely Aquatic Life Criteria for Pb, Zn, and Cd, depending on hardness.
5. Page 2-3, Section 2-4. The results of the toxicity tests should be given if the data is used in the SAP.
6. Pages 3-1 and 3-2, Section 3.1. Fine particle size sediment, and hence higher metal concentrations in Joachim Creek, will be located in slow-moving pools and sloughs. Therefore, sampling point bars will most likely miss areas of greatest impact. Therefore, transects that cover backwaters and slow-moving pools should be added to the sediment sampling.
7. Pages 3-1, Section 3.1. According to Doe Run, sediment samples were taken in the fall of 2000, when water levels in Joachim Creek were at a historic low. This data should be included in the analyses.
8. Page 3-2, Section 3.1.1. The text refers to additional sampling that may be done in the Mississippi River in Phase II. This phased approach is not contemplated in the AOC and is not discussed in the text of the SAP. Doe Run needs to include Mississippi River sediment sampling in the current SAP.
9. Page 3-5, Section 3.1.3.2. The SAP discusses concerns with contamination of samples by fugitive dust. A more important issue is the impact of smelter fallout and road dust on the media being sampled: soils, sediment and surface water. These issues need to be addressed in the SAP in order to appropriately characterize what sources of metal loading are contributing to risk.
10. Page 3-7, Section 3.1.4.1. The first paragraph should be modified. The conditions that adsorb metals and potentially reduce their availability, i.e. high surface area clay and organic molecules, could exist in equal proportions deep in a sediment column as they do in the top. The conditions that may lead to lower availability of metals to the ecosystem would be reducing conditions from an electropotential standpoint, and the fact that fewer organisms will be in contact with deeper sediment. However, these conditions will change with each high velocity flow event.
11. Page 3-10, Section 3.2.2. DNR has collected samples (enclosed) of sediment and water from stormwater discharge locations and Joachim Creek. These samples indicate that stormwater runoff from the haul roads could be a significant metal loading source to Joachim Creek. The SAP should cover further investigation of this issue.
12. Page 3-14, Section 3.3. Transects or other surface soil sampling locations should be added to characterize upland, terrestrial ecosystem impacts from smelter deposition.
13. Page 3-15, Section 3.3.1.1, Reference Surface Soil Sampling Locations A reference site that

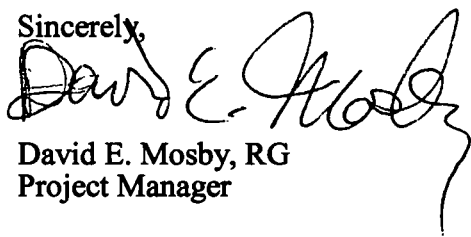
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is outside of the influence of the smelter should be sampled to be truly representative of background conditions.

14. Page 3-20, Section 3.4.3.2. Chemical Analysis of Slag, Scanning Electron Microprobe (SEM) and Wavelength Dispersive Spectroscopy would provide much more useful speciation data than x-ray diffraction (XRD). Individual minerals, frequency of occurrence, relative percentages, and rinding effects can be discerned with the SEM method, whereas XRD tends to give more generalized information about bulk samples.
15. Page 3-24, Section 3.4.4.3. What magnitude flood or storm event will be monitored?
16. Page 4-1, Section 4, attached are fish tissue data from Joachim Creek collected by the Missouri Department of Conservation. These results along with other tissue and sediment samples collected by DNR and U.S. Fish & Wildlife Service provide sufficient information to select contaminants of potential concern.
17. Page 5-5, Section 5-2. In addition to a population-based floristic community survey, chemical analyses of plant tissue should be conducted to provide information for the ecological risk assessment and the natural resources injury assessment.

This concludes my comments on the subject document. I can be reached at (573) 751-1288, if you have any questions concerning this matter.

Sincerely,



David E. Mosby, RG
Project Manager

c: Jim Lanzafame, Doe Run
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